

GRIP

SUB-BASS MANAGEMENT SYSTEM

User Manual

ALESIS

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Table Of Contents

Introduction	3
Welcome!.....	3
About the GRIP	4
GRIP Key Features	4
How to Use This Manual	5
Important Safety Instructions	7
Important Safety Instructions (English)	7
Safety symbols used in this product.....	7
Please follow these precautions when using this product:.....	7
Instructions de Sécurité Importantes	
(French)	9
Symboles utilisés dans ce produit.....	9
Veuillez suivre ces précautions lors de l'utilisation de	
l'appareil:	9
Lesen Sie bitte die folgende	
Sicherheitshinweise (German)	11
Sicherheit Symbole verwendet in diesem Produkt.....	11
Folgen Sie bitte diesen Vorkehrungen, wenn dieses	
Produkt verwendet wird:	11
CE Declaration Of Conformity	13
FCC Compliance Statement	13
Getting Started	15
Hooking Up the GRIP	15
Applications	15
DJ Setup.....	16
Recording.....	16
Live Performance (Club/Concert).....	16
Important Notes on Using the GRIP	16
Rack-Mounting the GRIP	16
Connecting Instruments Safely.....	16
Maintaining Proper Levels.....	16
Stabilizing Your Turntable and CD Player.....	17
A Tour of the Grip	19
Front Panel	19
POWER Button.....	19
INPUT Knob.....	19
Crossover (XOVER) Knob.....	19
XOVER OUT Button.....	20
SUB BASS LEVEL knob	20
BASS DRIVE Knob	20
GAIN REDUCTION LED Meter.....	21
BASS LEVEL Knob	21
BASS LEVEL LED Meter.....	21
INPUT LEVEL LED Meter	19
CLIP LED Indicator.....	19

Table Of Contents

LO CUT Knob	21
OUTPUT Knob	21
BYPASS Button	21
Rear Panel.....	22
INPUT Jacks	22
OUTPUT Jacks	22
XOVER OUTPUT Jack	22
IEC POWER Jack	22
Suggested Settings	23
Troubleshooting.....	25
Troubleshooting Index.....	25
Specifications	27
Audio Input	27
Audio Output	27
Audio Performance	27
Mechanical	27
Index	31
Warranty/Contact Alesis	33
Alesis Limited Warranty.....	33
Alesis Contact Information.....	34

Welcome!

Thank you for making the Alesis GRIP a part of your setup. Since 1984, we've been designing and building creative tools for the audio community. We believe in our products, because we've heard the results that creative people like you have achieved with them. One of Alesis' goals is to make high-quality studio equipment available to everyone, and this User Manual is an important part of that. After all, there's no point in making equipment with all kinds of capabilities if no one explains how to use them. So, we try to write our manuals as carefully as we build our products.

The goal of this manual is to get you the information you need as quickly as possible, with a minimum of hassle. We hope we've achieved that. If not, please drop us an email and give us your suggestions on how we could improve future editions of this manual.

We hope your investment will bring you many years of creative enjoyment and help you achieve your musical goals.

Sincerely,
The people of Alesis

*For more effective
service and product
update notices, please
register your GRIP
online at:
[http://www.alesis.com/
support/warranty.htm](http://www.alesis.com/support/warranty.htm)*

About the GRIP

The GRIP offers you advanced methods for processing and generating low frequencies for live or recorded music. It does this via two different methods of signal processing. First, it gives you several different means of adjusting the character and level of the low frequencies of the input signal. Second, it includes a proprietary sub-harmonic synthesizer that creates sub-bass signals harmonically related to—but not present in—the original signal. In short, it improves the bass that is there, and creates sub-bass where none exists.

We created the GRIP so that it adjusts *only* the low frequencies of an input signal so that you can improve the bass without sacrificing the quality of the middle or upper ranges. Furthermore, you have precise control over which low frequencies are processed by the GRIP. This can add a high-fidelity sound to any musical scenario: a DJ setup, a club PA system, sound reinforcement at a concert and even studio or home recording projects involving any sort of instrument.

GRIP Key Features

1. Digital signal processing with stereo input and stereo output
2. Simple front-panel interface that gives you quick and easy access to all functions
3. LO CUT control that protects speakers from damage caused by ultra-low frequencies
4. Proprietary digital sub-harmonic synthesis algorithm adds bass not present in the original signal
5. A crossover output that allows you to route the lowest frequencies to a subwoofer
6. LED meters that provide constant visual indication of input level, gain reduction and bass level

How to Use This Manual

This manual is divided into the following sections describing the various functions and applications for the GRIP. While it's a good idea to read through the entire manual once carefully, those having general knowledge about studio equipment should use the table of contents to look up specific functions.

Chapter 3: Getting Started. If you're already experienced with signal processing, this will get you started using the GRIP right away. It's a short guide to the essential elements of hooking it up and using it for the first time. We've included a hookup diagram plus some applications for which the GRIP is most appropriate. The chapter ends with some important notes on operating the unit.


Chapter 4: A Tour of the GRIP features diagrams of the front and rear panels, along with descriptions of each of the controls and features found there.

Chapter 5: Suggested Settings provides some suggested front-panel settings for several usage scenarios.

Chapter 6: Troubleshooting can give you a hand if you're experiencing problems with the GRIP. You'll find that most issues can be resolved simply and quickly.

Near the end of the manual are specifications, and an index to help you find what you're looking for.

Helpful tips and advice are highlighted in a shaded box like this.



When something important appears in the manual, an exclamation mark (like the one shown at left) will appear with some explanatory text. This symbol indicates that this information is vital when operating the GRIP.

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Important Safety Instructions (English)

Safety symbols used in this product



This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.



This symbol warns the user of un-insulated voltage within the unit that can cause dangerous electric shocks.



This symbol warns the user that output connectors contain voltages that can cause dangerous electrical shock.

Please follow these precautions when using this product:



1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a damp cloth. Do not spray any liquid cleaner onto the faceplate, as this may damage the front panel controls or cause a dangerous condition.
7. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety.

When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Use only attachments or accessories specified by the manufacturer.



12. Use only with a cart, stand, bracket, or table designed for use with professional audio or music equipment. In any installation, make sure that injury or damage will not result from cables pulling on the apparatus and its mounting. If a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. This unit produces heat when operated normally. Operate in a well-ventilated area with at least six inches of clearance from peripheral equipment.

16. This product, in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

17. Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids (flower vases, soft drink cans, coffee cups) on the apparatus.

18. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

Instructions de Sécurité Importantes (French)

Symboles utilisés dans ce produit



Ce symbole alerte l'utilisateur qu'il existe des instructions de fonctionnement et de maintenance dans la documentation jointe avec ce produit.



Ce symbole avertit l'utilisateur de la présence d'une tension non isolée à l'intérieur de l'appareil pouvant engendrer des chocs électriques.



Ce symbole prévient l'utilisateur de la présence de tensions sur les raccords de sorties, représentant un risque d'électrocution.

Veillez suivre ces précautions lors de l'utilisation de l'appareil:



1. Lisez ces instructions.
2. Gardez ces instructions.
3. Tenez compte de tous les avertissements.
4. Suivez toutes les instructions.
5. N'utilisez pas cet appareil à proximité de l'eau.
6. Ne nettoyez qu'avec un chiffon humide. Il est potentiellement dangereux d'utiliser des pulvérisateurs ou nettoyeurs liquides sur cet appareil.
7. Installez selon les recommandations du constructeur.
8. Ne pas installer à proximité de sources de chaleur comme radiateurs, cuisinière ou autres appareils (dont les amplificateurs) produisant de la chaleur.
9. Ne pas enlever la prise de terre du cordon secteur. Une prise murale avec terre deux broches et une troisième reliée à la terre. Cette dernière est présente pour votre

sécurité. Si le cordon secteur ne rentre pas dans la prise de courant, demandez à un électricien qualifié de remplacer la prise.

10. Evitez de marcher sur le cordon secteur ou de le pincer, en particulier au niveau de la prise, et aux endroits où il sort de l'appareil.
11. N'utilisez que des accessoires spécifiés par le constructeur.



12. N'utilisez qu'avec un stand, ou table conçus pour l'utilisation d'audio professionnel ou instruments de musique. Dans toute installation, veillez de ne rien endommager à cause de câbles qui tirent sur des appareils et leur support.



13. Débranchez l'appareil lors d'un orage ou lorsqu'il n'est pas utilisé pendant longtemps.
14. Faites réparer par un personnel qualifié. Une réparation est nécessaire lorsque l'appareil a été endommagé de quelque sorte que ce soit, par exemple lorsque le cordon secteur ou la prise sont endommagés, si du liquide a coulé ou des objets se sont introduits dans l'appareil, si celui-ci a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.
15. Puisque son fonctionnement normale génère de la chaleur, placez cet appareil au moins 15cm. des équipements périphériques et assurez que l'emplacement permet la circulation de l'air.
16. Ce produit, utilisé avec un amplificateur et un casque ou des enceintes, est capable de produire des niveaux sonores pouvant engendrer une perte permanente de l'ouïe. Ne l'utilisez pas pendant longtemps à un niveau sonore élevé ou à un niveau non confortable. Si vous remarquez une perte de l'ouïe ou un bourdonnement dans les oreilles, consultez un spécialiste.
17. N'exposez pas l'appareil à l'égoutture ou à l'éclaboussement. Ne placez pas les objets remplis de liquides (vases à fleur, boîtes de boisson non alcoolique, tasses de café) sur l'appareil.
18. **AVERTISSEMENT:** Pour réduire le risque du feu ou de décharge électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.

Lesen Sie bitte die folgende Sicherheitshinweise (German)**Sicherheit Symbole verwendet in diesem Produkt**

Dieses Symbol alarmiert den Benutzer, daß es wichtige Funktionieren und Wartung Anweisungen in der Literatur gibt, die diese Maßeinheit begleitet.



Dieses Symbol warnt den Benutzer der nicht isolierten Spannung innerhalb der Maßeinheit, die gefährliche elektrische Schläge verursachen kann.



Dieses Symbol warnt den Benutzer, dem Ausgabestecker Spannungen enthalten, die gefährlichen elektrischen Schlag verursachen können.

Folgen Sie bitte diesen Vorkehrungen, wenn dieses Produkt verwendet wird:

1. Lesen Sie die Hinweise.
2. Halten Sie sich an die Anleitung.
3. Beachten Sie alle Warnungen.
4. Beachten Sie alle Hinweise.
5. Bringen Sie das Gerät nie mit Wasser in Berührung.
6. Verwenden Sie zur Reinigung nur ein weiches Tuch. Verwenden Sie keine flüssigen Reinigungsmittel. Dies kann gefährliche Folgen haben.
7. Halten Sie sich beim Aufbau des Gerätes an die Angaben des Herstellers.
8. Stellen Sie das Gerät nicht in der Nähe von Heizkörpern, Heizungsklappen oder anderen Wärmequellen (einschließlich Verstärkern) auf.

9. Verfehlen Sie nicht den Zweck des grounding Terminals auf dem Netzstecker. Dieses Terminal wird für Ihre Sicherheit zur Verfügung gestellt.
10. Verlegen Sie das Netzkabel des Gerätes niemals so, daß man darüber stolpern kann oder daß es gequetscht wird.
11. Benutzen Sie nur das vom Hersteller empfohlene Zubehör.



12. Verwenden Sie ausschließlich Wagen, Ständer, oder Tische, die speziell für professionelle Audio- und Musikinstrumente geeignet sind. Achten Sie immer darauf, daß die jeweiligen Geräte sicher installiert sind, um Schäden und Verletzungen zu vermeiden. Wenn Sie einen Rollwagen benutzen, achten Sie darauf, das dieser nicht umkippt, um Verletzungen auszuschließen.
13. Ziehen Sie während eines Gewitters oder wenn Sie das Gerät über einen längeren Zeitraum nicht benutzen den Netzstecker aus der Steckdose.



14. Die Wartung sollte nur durch qualifiziertes Fachpersonal erfolgen. Die Wartung wird notwendig, wenn das Gerät beschädigt wurde oder aber das Stromkabel oder der Stecker, Gegenstände oder Flüssigkeit in das Gerät gelangt sind, das Gerät dem Regen oder Feuchtigkeit ausgesetzt war und deshalb nicht mehr normal arbeitet oder heruntergefallen ist.
15. Dieses Gerät produziert auch im normalen Betrieb Wärme. Achten Sie deshalb auf ausreichende Lüftung mit mindestens 15 cm Abstand von anderen Geräten.
16. Dieses Produkt kann in Verbindung mit einem Verstärker und Kopfhörern oder Lautsprechern Lautstärkepegel erzeugen, die anhaltende Gehörschäden verursachen. Betreiben Sie es nicht über längere Zeit mit hoher Lautstärke oder einem Pegel, der Ihnen unangenehm ist. Wenn Sie ein Nachlassen des Gehörs oder ein Klingeln in den Ohren feststellen, sollten Sie einen Ohrenarzt aufsuchen.
17. Setzen Sie den Apparat nicht Bratenfett oder dem Spritzen aus. Plazieren Sie die Nachrichten, die mit Flüssigkeiten (gefüllt werden Blumenvases, Getränkedosen, Kaffeetassen) nicht auf den Apparat.
18. WARNING: um die Gefahr des Feuers oder des elektrischen Schlages zu verringern, setzen Sie diesen Apparat nicht Regen oder Feuchtigkeit aus.

CE Declaration Of Conformity

See our Web site at:

<http://www.alesis.com>

FCC Compliance Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

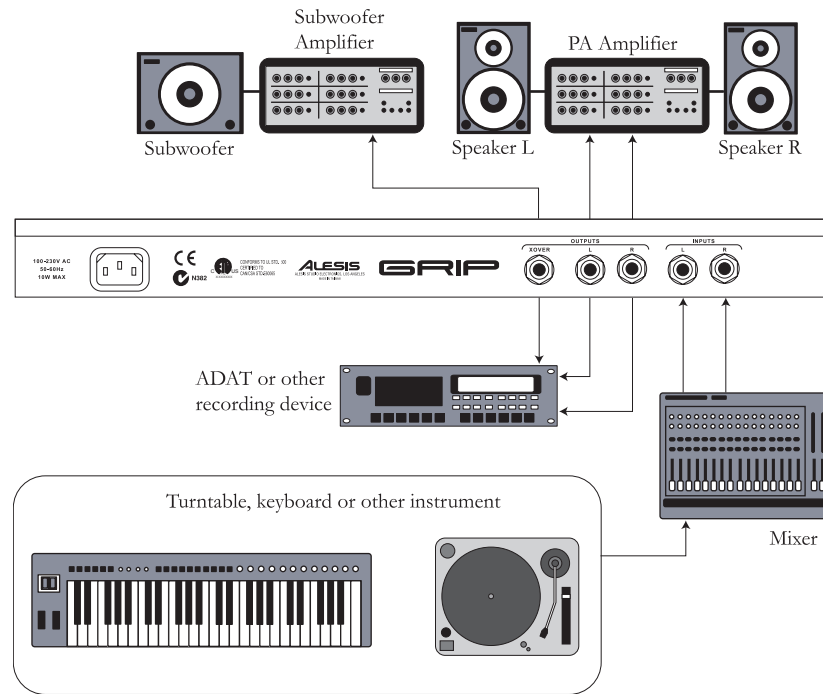
2 Important Safety Instructions

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3 Getting Started

Hooking Up the GRIP

The following diagram shows you the standard method of integrating the GRIP into your audio setup. See the next section, “Applications,” for more about the connections in this diagram, as well as some hints on other ways to use the unit.



Applications

The GRIP is a versatile tool that can be used in a variety of musical scenarios. Following are a few suggestions for the most common applications, as well as some guidelines you should follow when including the unit in your audio setup. We also recommend that you experiment to find out how the GRIP best works for you.

DJ Setup

When using the unit in a DJ setup, you should connect the GRIP between the main outs of your mixer and the inputs of your amplifier. The XOVER OUT should be connected to a separate amplifier and subwoofer that can handle very low frequencies.

Recording

When using the GRIP in a recording scenario, you can connect the unit to the inserts on one or two mixer channels, or to the mixer's main inserts to cover the entire mix. You can also plug an instrument directly into the GRIP and connect the GRIP's output to a mixer or recording device such as a 4-track, ADAT or digital audio workstation.

Live Performance (Club/Concert)

When using the GRIP for a live performance, connect it between your mixer and amplifier in the same way as described for a DJ setup above.

Important Notes on Using the GRIP

Rack-Mounting the GRIP

The GRIP fits in a 1U rack space. It's perfectly normal for the unit itself to get a little warm during operation.

Connecting Instruments Safely

When connecting the GRIP to instruments and other equipment, always turn down the levels of the signals going to your speakers or headphones. Also make sure that the GRIP's INPUT LEVEL knob is set fully counterclockwise. These steps will prevent any unexpected, loud noises that could damage your speakers (or your hearing).

Maintaining Proper Levels

Never use the GRIP at extreme levels, as this also could damage speakers. Your speakers should be safe as long as you keep the unit at a comfortable listening volume. The GRIP creates incredible low-end even when the volume isn't at maximum. If you plan on using the unit at a considerable volume, you will need an amplifier and speakers built to handle very low frequencies.

Connecting the GRIP's XOVER OUT to a speaker that can't handle very low frequencies could permanently damage your speakers if the SUB BASS LEVEL setting is too high. Always make sure you're outputting this signal to a speaker system that can handle it.

It's a good idea to turn off all your equipment before making connections. One of the best ways to avoid harmful transients is to turn on your amplifier last, and turn it off before all other equipment.

Stabilizing Your Turntable and CD Player

Because a turntable is a delicate instrument, it is extremely susceptible to audio vibrations that occur nearby, especially low-frequency vibrations. The increased levels of bass produced by the GRIP could cause your turntable to vibrate, producing unwanted feedback. To avoid this problem, make sure your turntable is a good distance away from your speakers. You can take further precaution by installing shock absorbers on your turntable. These can be found in stores that sell DJ equipment.

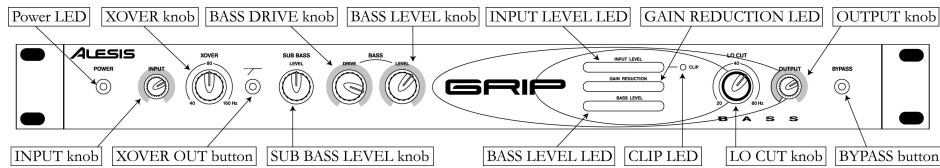
CD players are also notorious for their susceptibility to low-frequency rumble. To prevent your CD player from skipping, make sure you place it far away from your speakers.

3 Getting Started

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4 A Tour of the GRIP

Front Panel



POWER Button

Press this to turn the GRIP on and off. The button is lit blue when the GRIP is receiving power. This is a “soft” power switch that does not actually interrupt power, but simply suspends operation and turns off the front-panel LEDs.

INPUT Knob

This knob adjusts the level of the input signal.

INPUT LEVEL LED Meter

This is the green meter that you see on the right side of the front panel. It displays the average level of the louder of the Right or Left input signals. It lights from left to right as the level of the input signal increases.

CLIP LED Indicator

This indicator is the red light located to the right of the INPUT meter. When lit it indicates that the input signal is clipping, which means that the signal is too great for the GRIP to handle. This can cause unpleasant distortion, so if this indicator lights up, you should lower the level of the input signal.

Crossover (XOVER) Knob

This knob adjusts the frequency of the GRIP’s two-way crossover. The GRIP will process only those frequencies that fall below the one you set with the XOVER knob. This ensures that the unit processes only the frequencies you want it to process, leaving the higher frequencies untouched. The range of this control sweeps from 40 Hz to 160 Hz.

When using the GRIP on program material – such as a CD or LP – you should set the **XOVER** knob to a low setting so that the unit doesn't process the vocals or other lead instruments. For your reference, the graphs at the right provide examples of typical frequency response curves for bass, kick drums and vocals.

XOVER OUT Button

This button toggles a high-pass filter on the main outputs. When you engage the button, frequencies falling below the setting of the **XOVER** knob are removed from the main outputs (but are still present in the **XOVER** output). This allows you to separately route the sub-bass present in the GRIP's signal.

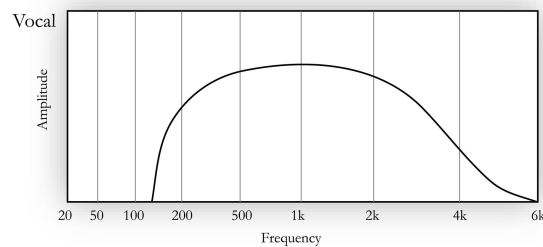
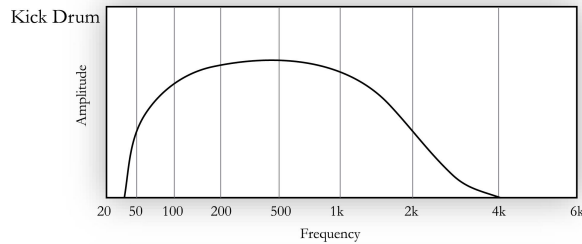
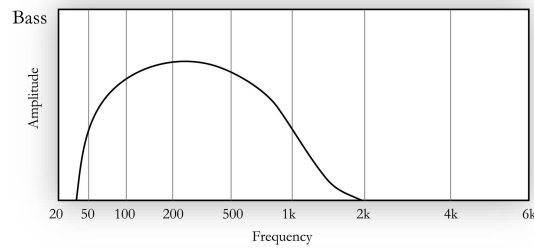
When the **XOVER** button is not engaged, the main outputs carry the GRIP's total output signal, limited only by the **LO CUT** knob.

SUB BASS LEVEL Knob

This controls output level of the GRIP's sub-harmonic synthesizer. This signal consists of the bass frequencies produced by the GRIP that were not present in the original signal.

BASS DRIVE Knob

This knob controls the action of a pair of multi-band limiters acting on the Bass and Sub-Bass signals. You should treat it as a tone control. Turning the knob clockwise gives you a rounder sound with longer sustain, and turning it counterclockwise gives you a faster, more dynamic sound.



GAIN REDUCTION LED Meter

The red LED meter displays the amount of gain reduction applied by the bass limiters. An increase in gain reduction – by turning the BASS DRIVE Knob clockwise - will cause the meter to light from right to left.

BASS LEVEL Knob

This knob adjusts the level of the frequencies that fall below the crossover point set by the XOVER knob, except for the sub-bass.

BASS LEVEL LED Meter

This meter indicates the level of the GRIP's main output signal. As you increase the level by turning the BASS LEVEL knob clockwise, this meter lights amber from left to right.

LO CUT Knob

This adjusts the cutoff frequency of a steep (6-pole) high-pass filter, effectively limiting the lowest frequencies that the GRIP can output. The unit will output only those frequencies that are higher than the one set with the LO CUT knob. This knob is useful for protecting your speakers from ultra-low frequencies that may cause damage.

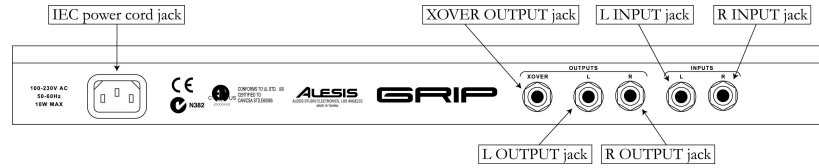
OUTPUT Knob

This knob controls the level of the GRIP's total output signal from both the bass and sub-bass channels.

BYPASS Button

When you activate this button, the audio signal bypasses the Grip without being processed. This is useful when you want to compare the processed signal with the unprocessed signal. This button lights red when you enter BYPASS mode.

Rear Panel



INPUT Jacks

The GRIP's two input jacks give you analog stereo inputs using TRS balanced 1/4" connectors. If you are using a mono instrument, plug it into the left input jack.

The nominal input level, with the INPUT knob at 12 o'clock, is +4 dBu (1.23 VRMS). Input impedance is 10 kOhms.

OUTPUT Jacks

These two jacks provide analog stereo output using TRS impedance-balanced 1/4" connectors. These outputs carry the total signal from the GRIP, including the sub-harmonic synthesizer's channel. If you want to output a mono signal, use either jack.

The nominal output level is +4 dBu (1.23 VRMS) = -15 dBFS, and the maximum output level is +19 dBu (6.9 VRMS) = -0 dBFS. Output impedance is 150 Ohms.

XOVER OUTPUT Jack

This jack carries the combined bass and sub-bass signals – as determined by the XOVER Frequency and LO CUT Frequency knobs. This jack is a TRS impedance-balanced 1/4" connector, and has the same maximum output, nominal output and impedance as the OUTPUT jacks.

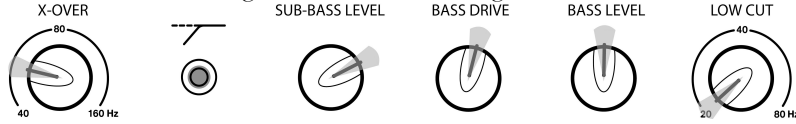
IEC POWER Jack

Here's where you plug in the GRIP's IEC power cord. This jack is made to accept most IEC power cords. It has a universal input of 100 – 260 VAC.

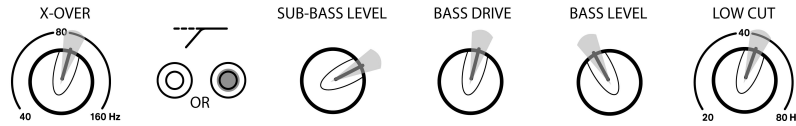
5

Suggested Settings

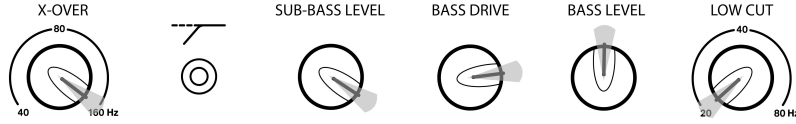
LARGE PA: Give those big sub-woofers something to do!



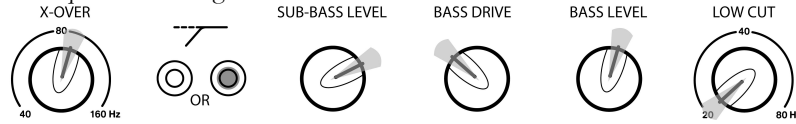
SMALL PA: A little extra bass embiggens the smallest speakers. Try to match the LO CUT setting to your speakers' specified frequency response.



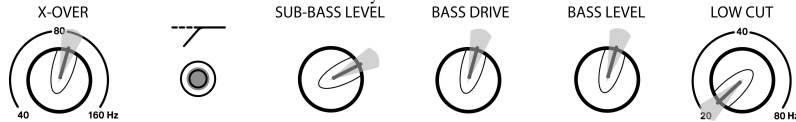
SYNTH BASS/BASS GUITAR: More is better.



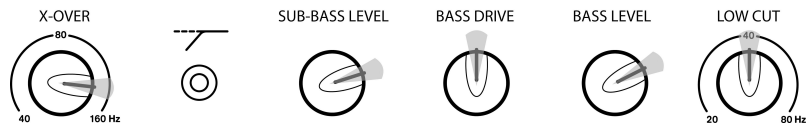
BASS EXTENSION: Add clear, natural sub-bass to older CDs and LPs. Mastering for vinyl meant stripping away the lowest frequencies. Bring them back.



STUDIO CROSSOVER: Separate the highs and lows for discreet processing. Try sending the high frequencies to a reverb and then mix back in with the dry bass.



HEAVY GUITAR: Your guitar not have enough "chunk"? Tuned down and your strings are too flabby sounding? Bass player quit? Try this! Most users will prefer to run the GRIP before any effects or distortion.



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Troubleshooting Index

Symptoms	Cause	Solution
Unit does not function (no display or audio).	Unit not plugged in.	Make sure the power cord is connected to the GRIP and plugged into an electrical outlet.
Audio distorted, even in BYPASS.	Input level too high.	Reduce input level.
	Output level too high.	Turn down master volume.
No sound, level low.	Incorrect input/output connections.	Refer to chapter 3.
	Master volume set too low.	Change level setting.
Bass not present or too low.	Bass level or sub-bass level set too low.	Change level settings.
	LO CUT knob setting too high.	Turn LO CUT knob counterclockwise.
	Not enough bass present in input signal.	Adjust settings of input instrument to see if more bass can be input.
	BYPASS button engaged.	Disengage the BYPASS button.
Sub-bass signal not present in main output.	XOVER OUT button engaged.	Disengage XOVER OUT button.

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Audio Input

Input Connectors:	Stereo balanced 1/4" TRS jacks
Nominal Input Level (Input Knob at 12:00):	+4 dBu (1.23 VRMS)
Input Impedance:	10 kOhms

Audio Output

Output Connectors:	3 balanced 1/4" TRS jacks
Nominal Output Level:	+4 dBu (1.23 VRMS) = -1 dBFS
Maximum Output Level:	+19 dBu (6.9 VRMS) = -0 dBFS
Output Impedance:	150 Ohms

Audio Performance

Signal to Noise Ratio:	> 108dB
THD+N:	< 0.0033%
Frequency Response:	20 Hz – 22 kHz \pm 1.0 dB
Power Consumption:	7 W max. (100-240 VAC/50-60 Hz)

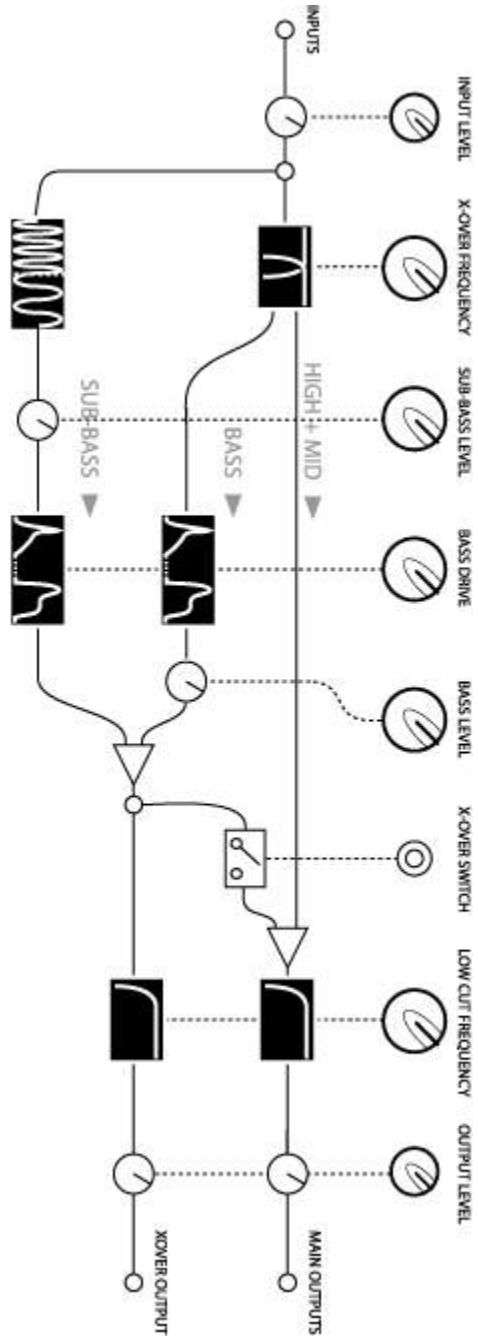
Mechanical

Size:	1.75" H x 19.0" W x 6.38" D 45mm H x 483mm W x 162mm
D	
Rack Spaces:	1 space
Weight:	4 lbs (1.8 kg)

All measurements done with INPUT knob turned fully clockwise with a 1kHz sine wave at -1.78 dBu (-1 dBFS) input. Impedances are measured at 1 kHz.

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8 Block Diagram



Index

- 4-track, 16
- ADAT, 16
- amplifier, 16
- BASS DRIVE knob, 20
- BASS LEVEL knob, 20
- BASS LEVEL meter, 20
- BYPASS button, 21
- CD player, 17
- CLIP indicator, 20
- connecting the GRIP, 16
- controls
 - BASS LEVEL knob, 20
 - BASS-DRIVE knob, 20
 - BYPASS button, 21
 - INPUT knob, 19
 - LO CUT knob, 20
 - OUTPUT knob, 21
 - POWER button, 19
 - SUB-BASS LEVEL knob, 19
 - XOVER knob, 19
 - XOVER OUT button, 19
- digital audio workstation (DAW), 16
- DJ setup, 15
- effect loop, 16
- feedback, 17
- front panel, 19
- GAIN REDUCTION meter, 20
- grounding, 7
- high-pass filter, 20
- hookup diagram, 15
- IEC POWER jack, 22
- INPUT jacks, 22
- INPUT knob, 19
- INPUT LEVEL meter, 20
- levels
 - maintaining proper, 16
- live performance, 16
- LO CUT knob, 20
- mixer, 15, 16, 22
- OUTPUT knob, 21
- outputs
 - main outputs, 22
 - XOVER OUT, 16
 - XOVER OUTPUT jack, 22
- PA system, 16
- POWER button, 19
- Power cable, 8
- R OUT button, 19
- rack-mounting the GRIP, 16
- rear panel, 22
- recording, 16
- RMS limiter, 20
- safety instructions
 - English, 7
 - French, 9
 - German, 11
- specifications, 27
- SUB-BASS LEVEL knob, 19
- subharmonic synthesizer, 4
- subharmonic synthesizer, 22
- transients, 16
- troubleshooting, 25
- turntable
 - stabilizing, 17
- woofer, 15
- XOVER knob, 19
- XOVER OUT, 16
- XOVER OUT button, 15
- XOVER OUTPUT jack, 22

Warranty / Contact Alesis

Alesis Limited Warranty

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